# Using ArcMap/Toolkit
# to Document Grassland Planning Options

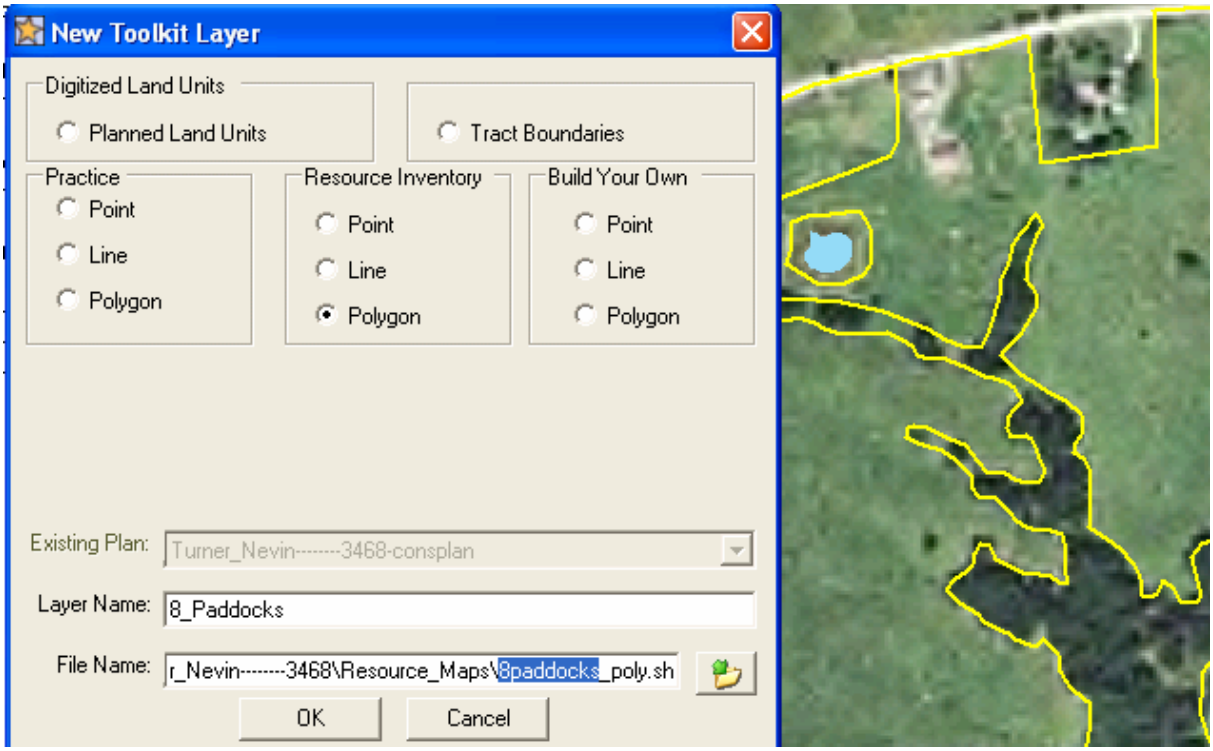
**Contents**

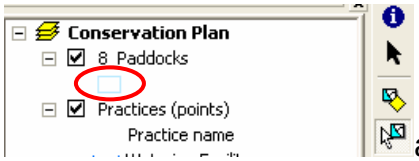


## I. Developing the "Paddocks" Layers

1. Check out the folder in Toolkit.
2. Open the folder.
3. Click on the "Customer File" tab
4. Double-click on the "Consplan.mxd" (or whatever name is used in your office) if one is available. ***If not available*** click on the custom Toolkit template for the county.

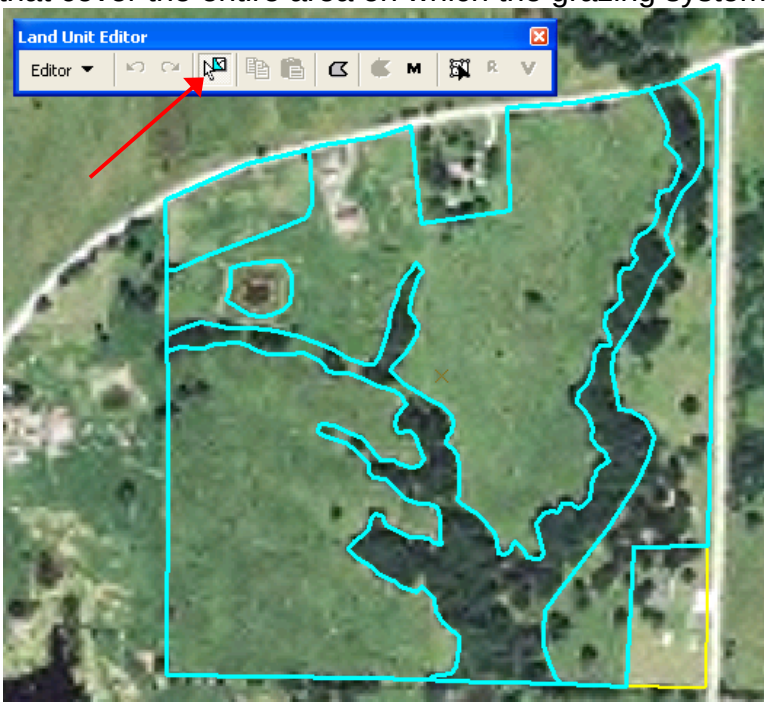
5. Click on the “Hardee’s Star”  to create a Resource Inventory Polygon layer. Name the layer in such a way that it is identified as grazing paddocks; it is often useful to use a naming convention that allows for multiple options—“8_Paddocks” or “Paddocks12” for example. *Change the file name so it is the same as the layer name.* Click “OK.”



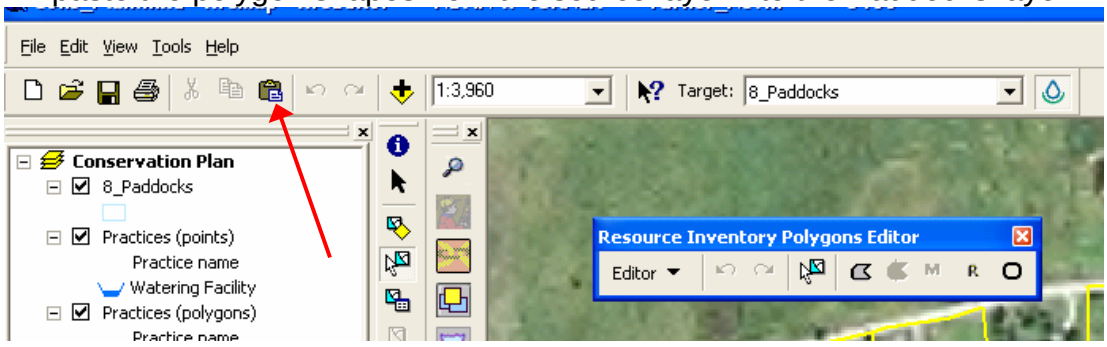

6. Double-click on the layer symbol, 

and change the symbol to “No Fill;” widen the line to 1-2, and select a line color that will contrast with the aerial photo (since the consplan lines are typically yellow it is recommended that a different color be used). On the “Resource Inventory Polygons Editor toolbar click on “Editor/Stop Editing.” Click “OK.”
7. Use the Consplan layer or the CLU layer as a source for polygon shapes you will use as a starting point for paddock division. Click on the “Pencil” (Toolkit Digitizer) button to select the layer to use as a source and to place that layer in “Edit Mode.”

8. Use the “Select Field” tool on the Editor Toolbar to select all the fields (polygons) that cover the entire area on which the grazing system will be planned.

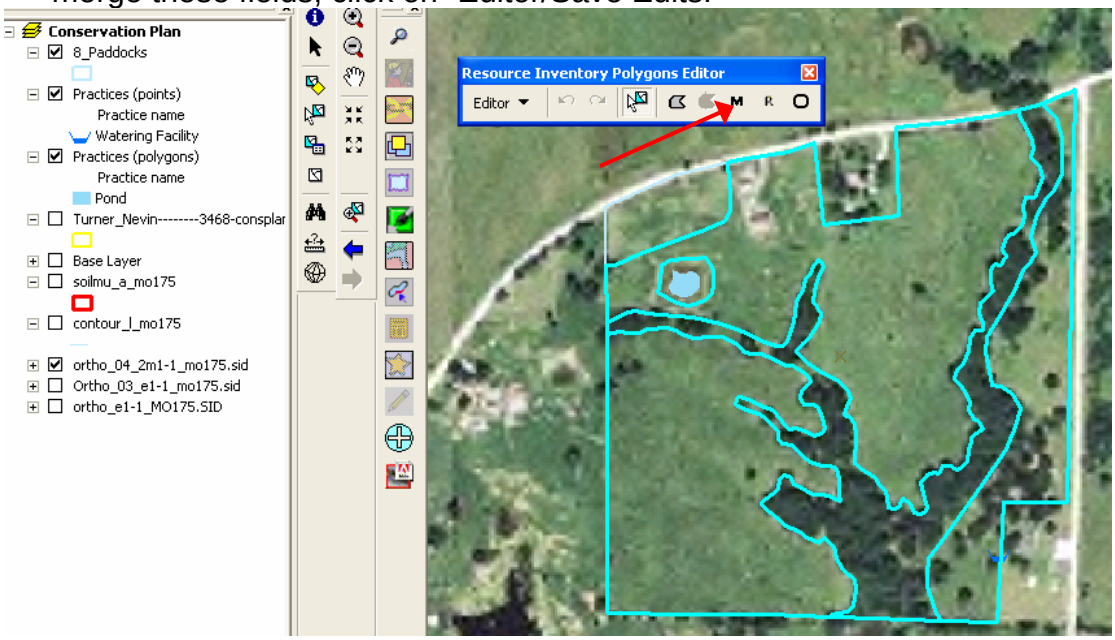



9. Right-click on the photo, and select “Copy.”
10. Click on “Editor/Stop Editing” on the Editor Toolbar
11. Click on the “Pencil” button and open the “Paddocks” layer (created in step 5) for editing. Click on the “Paste” button on the toolbar at the top of the screen to paste the polygon shapes from the source layer into the Paddocks layer.

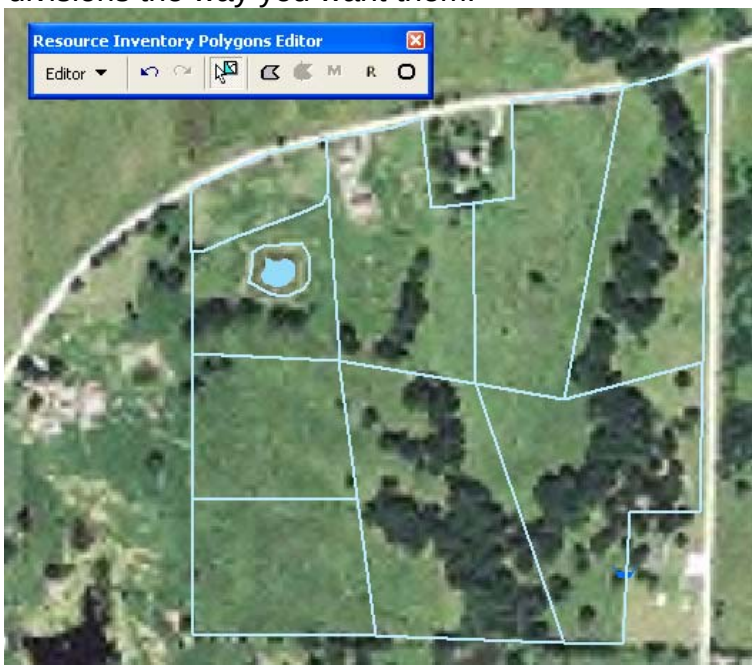



12. On the Resource Inventory Polygons Editor toolbar click on “Editor/Save Edits.”
13. Turn off (uncheck) the source layer—Consplan or CLU.

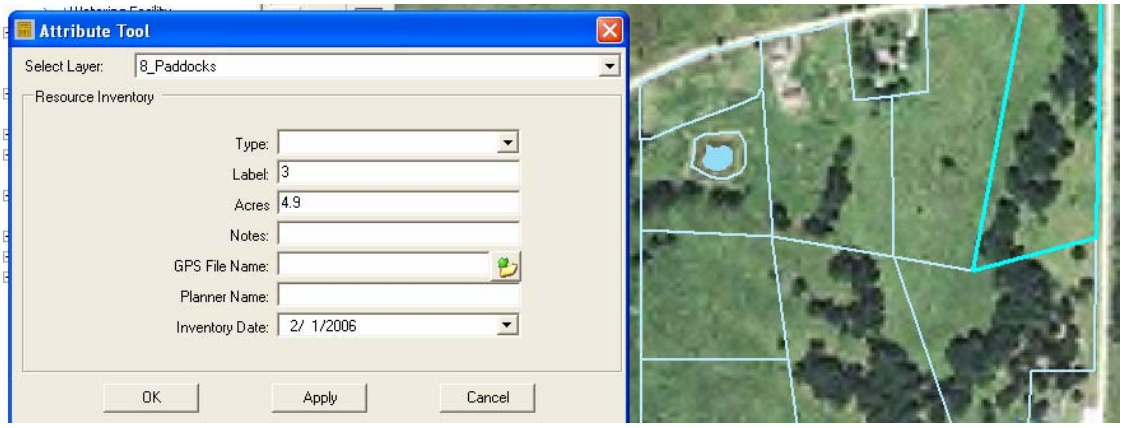
14. Using the “Select Field” tool on the Editor toolbar select features that need to be “merged” before you start splitting the fields into grazing paddocks. Don’t merge fields that are separated by existing permanent fences that will remain in place as part of the grazing system. Click on the “M” button on the editor toolbar to merge these fields; click on “Editor/Save Edits.”



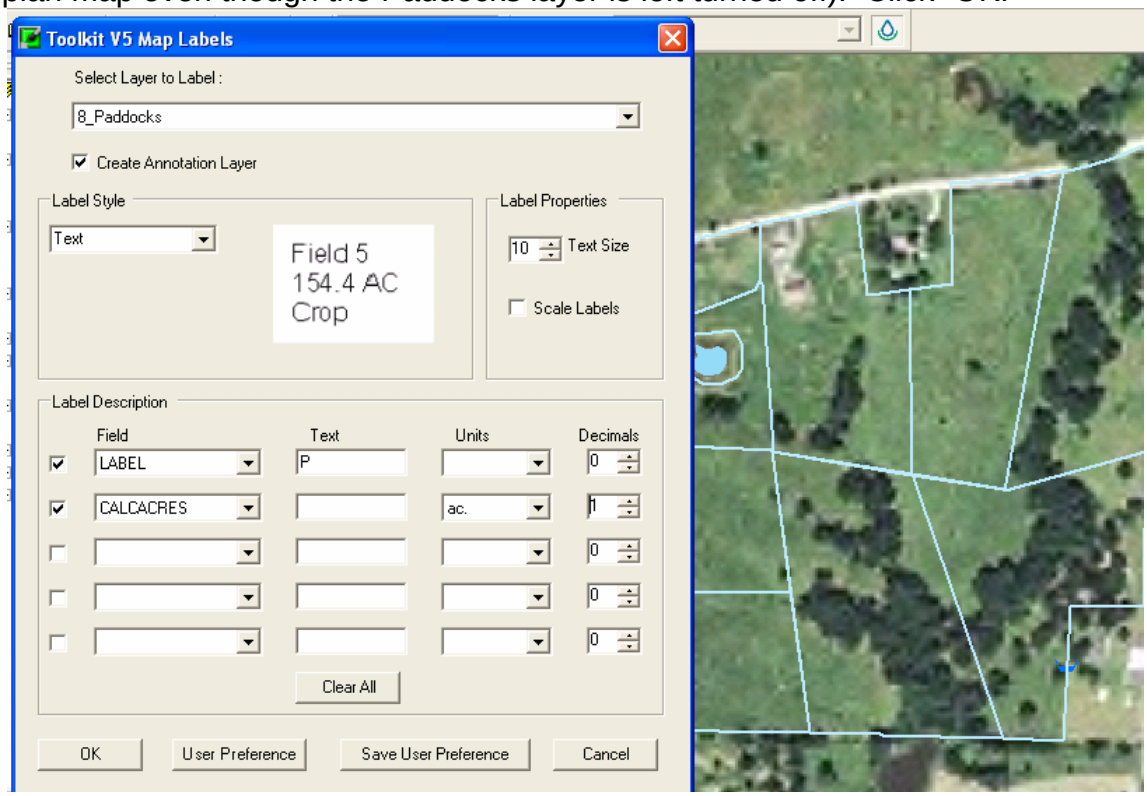

15. You are ready to begin splitting the pasture fields into grazing paddocks or cells. Use the “Select Feature” tool to select the field to split; then use the “Split Feature” tool to divide the field into paddocks. Continue the splitting process until you have created the number of divisions desired for this system option. It will usually take some “trial and error” (splitting, merging, and re-splitting) to get the divisions the way you want them.



16. Click on “Editor/Stop Editing.” Click on “Yes” to save edits.
17. Assign attributes to the paddocks using the attribute tool . Select the “Paddocks” layer from the drop-down list, then click on one of the paddocks with the cursor. ArcMap will calculate the acres. Enter a number, letter, or name for the paddock in the “Label” field; click on “Apply;” repeat for all paddocks. Click “OK.”

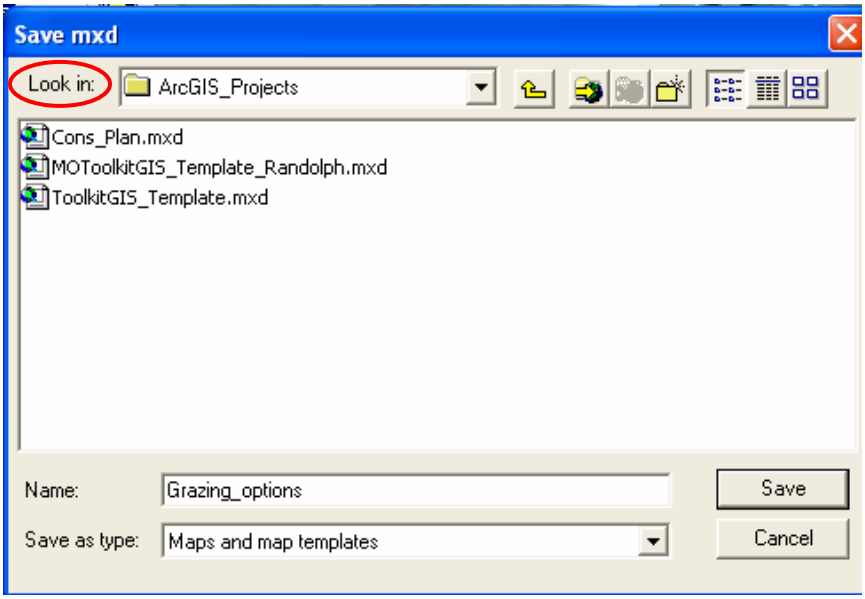


18. Label the Paddocks layer using the “Label” tool. Select the “Paddocks” layer. It is recommended that you use the “Text” style; place a check mark in the box beside the first two lines in the Label Description box: select “Label” for the first Field, and enter “P” or “Paddock” in the Text box. Select “Calcacres” for the Field on the second line, and set units to “ac.” and decimals to “1” for the second line. Click “OK.” ***DO*** create an annotation layer; name it the same as the layer (you may later want to turn on the paddock labels so they display on the conservation plan map even though the Paddocks layer is left turned off). Click “OK.”

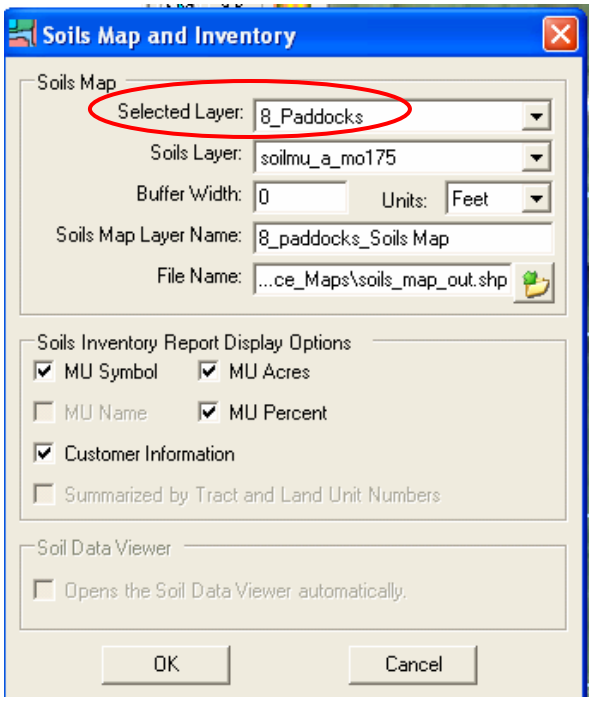


19. You may wish to change the color of the label text and move the labels around a bit. You may like to change the label properties to bold text. Use the black arrow pointer to select the labels you want to change. Use the buttons on the "Drawing" toolbar at the bottom of the screen to change the labels.


20. Click on the "File" pull-down (upper left), and click on "Save As" to save the mxd; give it a name like "Grazing_options" or "Paddock_design." Do not name it anything with the word "plan' in it; it's not a plan map. Click on the "Look in;" pull-down to ensure that the file will be saved in the correct customer's folder. Click on "Save."



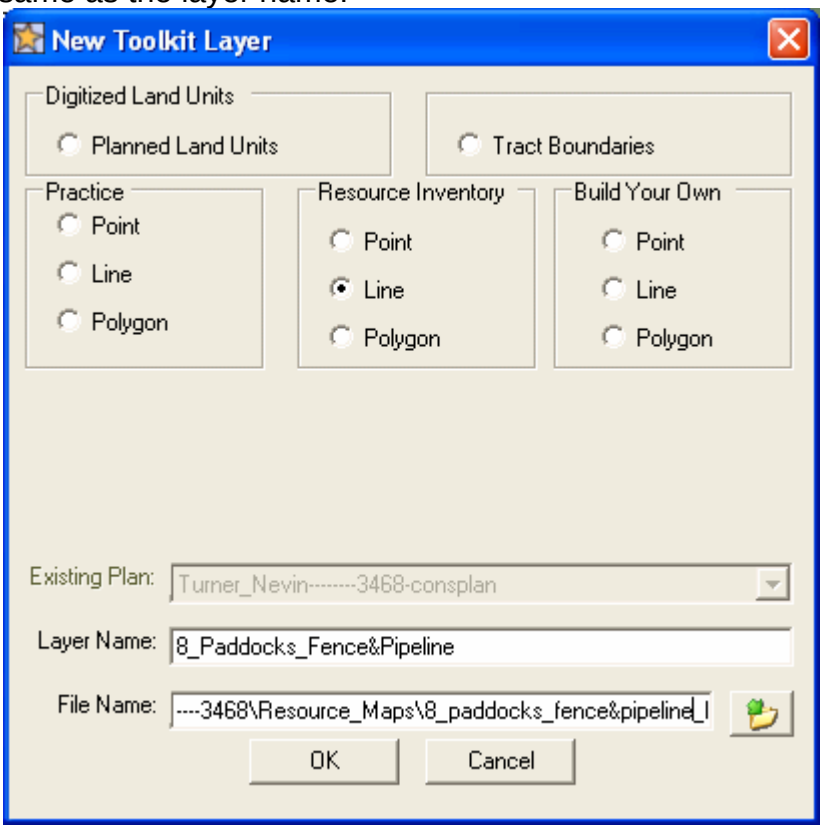
21. Repeat steps 5 through 19 until you've created layers showing all the options you want to present to the decision maker. Save the mxd (keeping the same name) after creating, attributing, and labeling the layer illustrating an option. ***Note – the "Paddocks" layer(s) can be used as the "Selected Layer" using the "Soils Map and Inventory" tool to develop a soil map that will display and enable you to calculate acres of each mapping unit in each paddock.*** *This information will allow you to develop more accurate forage yield estimates if needed.*



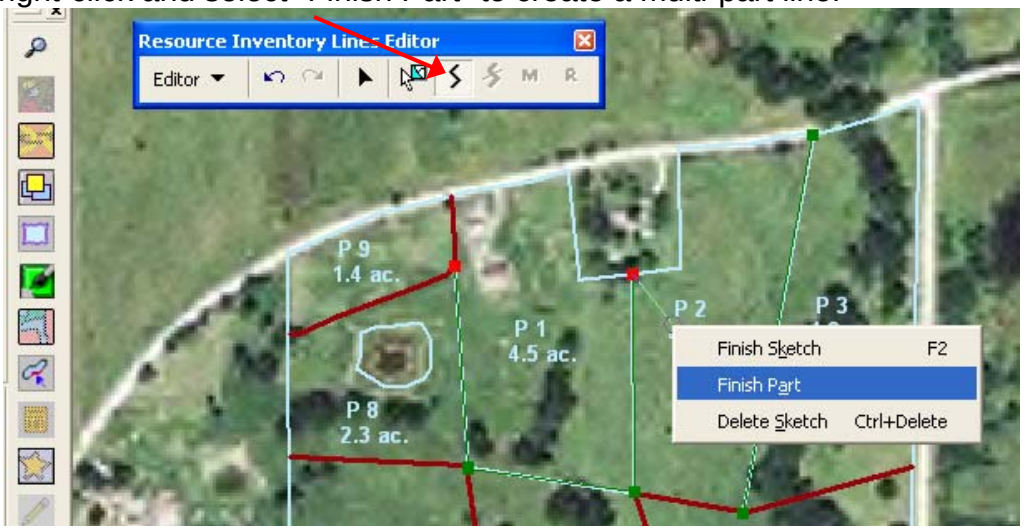
## II. Developing the "Grazing System Alternatives" Line Layers

The "Paddocks" layer(s) will be used as the basis and source layer for developing and digitizing line layer(s) to illustrate alternative fencing and pipeline locations to facilitate the proposed grazing system.

1. Click on the "Hardee's Star" to create a Resource Inventory Line layer. Name the layer in such a way that it is identified with the associated "paddocks" layer—"8_Paddocks_Fence&Pipeline" for example. Change the file name so it is the same as the layer name.

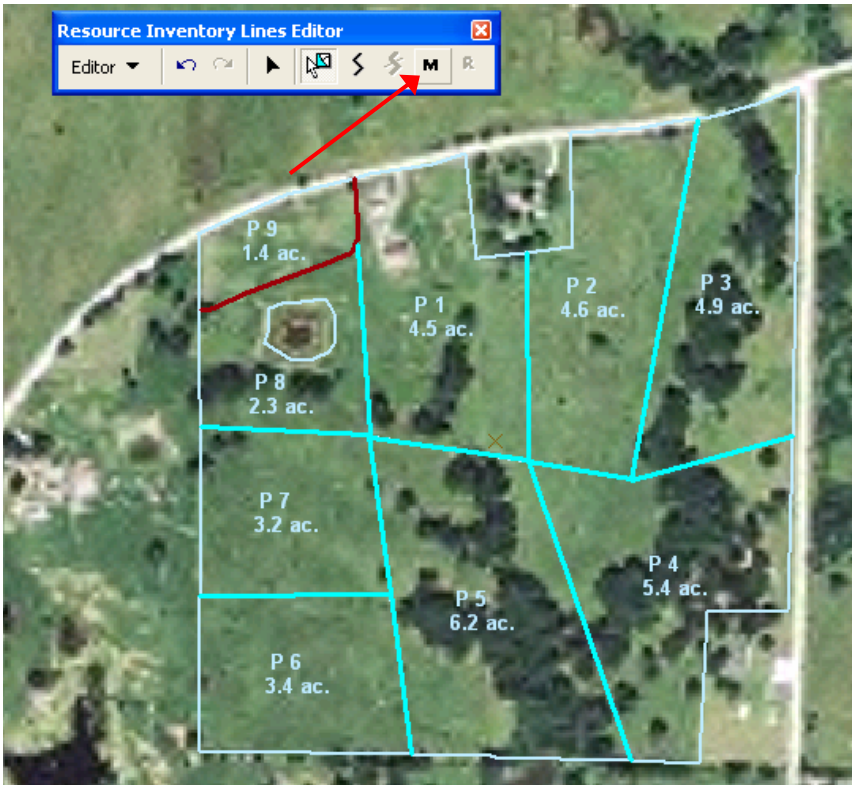


2. Use the “Add Feature” button on the Editor toolbar to digitize (fence) lines over the top of the “Paddocks” boundaries developed in Part I. After finishing the digitizing of an individual fence line by a left-click at the end of the fence, then right-click and select “Finish Part” to create a multi-part line.



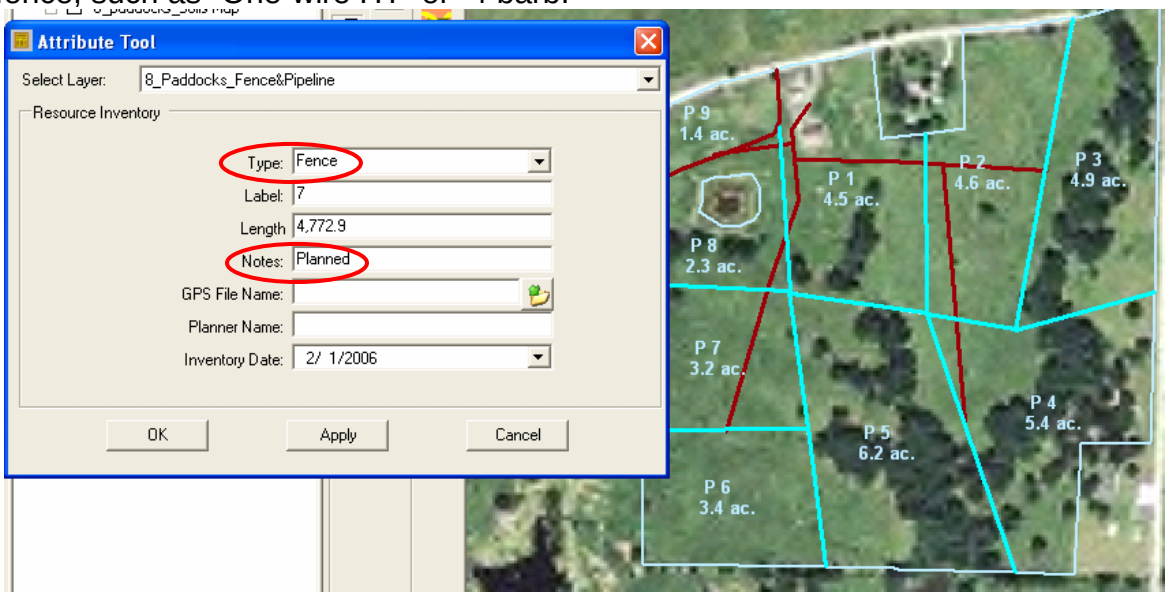

After you have digitized the last fence line right-click and select “Finish Sketch” to finish the sketch.

3. If you have digitized and/or copied the lines in such a way that you have multiple features (several individual lines) representing the planned fences, you will need to “merge” these lines into a single-part feature. Select all the lines representing planned fences and click on the “M” (merge) button on the Editor toolbar. Click on “Editor/Save Edits.”

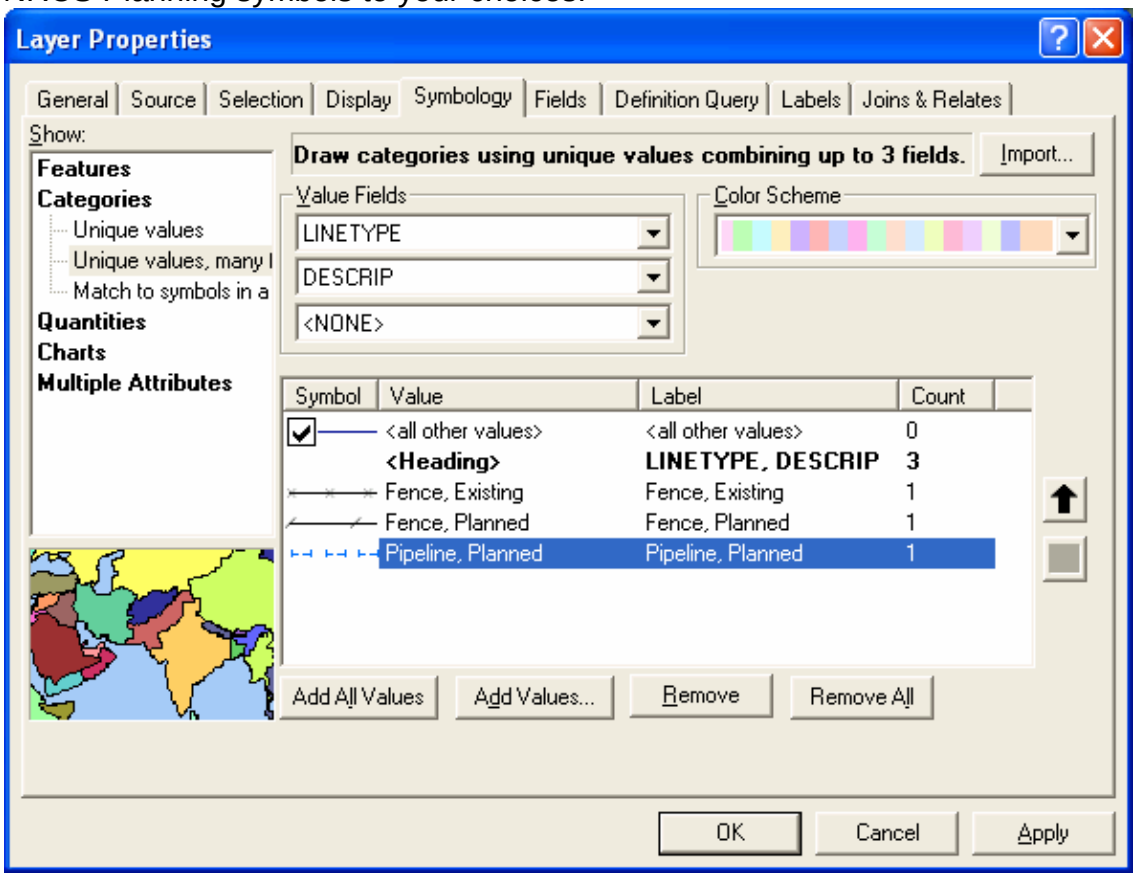


4. Use the “Add Feature” button on the Editor toolbar to digitize proposed water distribution pipelines. After finishing the digitizing of an individual pipeline by a left-click at the end of the line, then right-click and select “Finish Part” to create a multi-part line. Right-click and select “Finish Sketch” to finish the sketch.

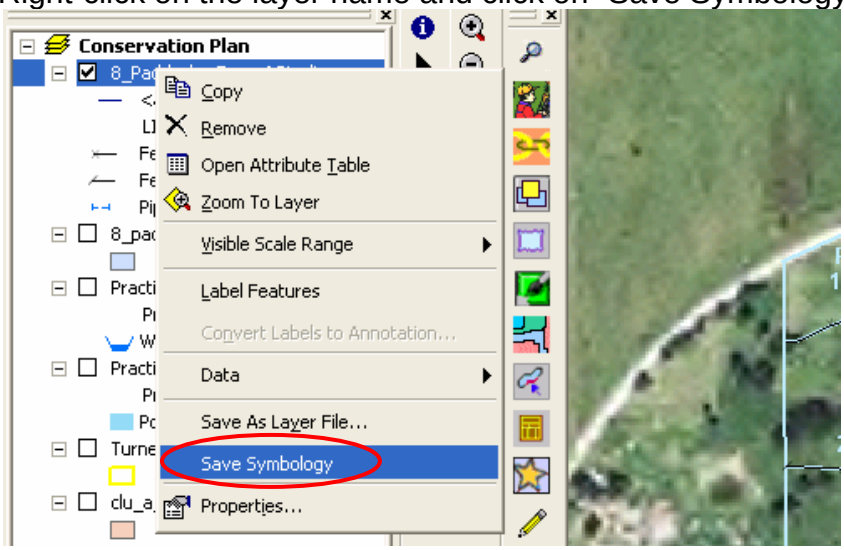

5. After all proposed fence lines and pipelines have been digitized click “Editor/Stop Editing” and save edits.
6. Attribute each of the line features. Indicate the “Type” as fence or pipeline. You can use the “Notes” field to distinguish between planned and existing features, if needed. You can also use the “Notes” field to designate the type of fence, such as “One-wire HT” or “4 barb.”



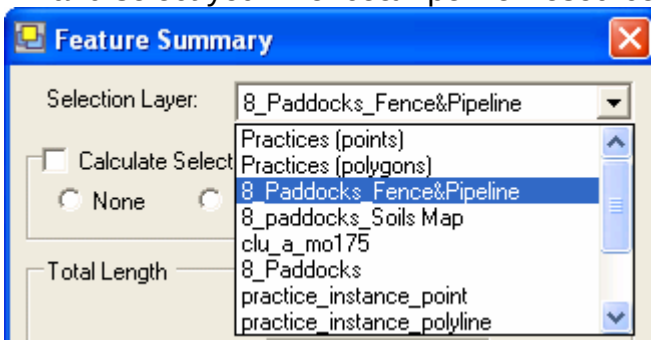
7. Set the symbology to display the lines using appropriate practice symbols. Right-click on the layer name (8_Paddocks_Fence&Pipeline in this case); click on "Properties;" and click on the "Symbology" tab. Click on "Categories" and select "Unique values, many fields" (Note – if it is not necessary to distinguish between planned and existing fences/pipelines use "Unique values."). Select "LINETYPE" as one value field and "DESCRIP" as the other value field. Click on "Add All Values." Select appropriate symbols for each of the values, and click on "OK." If the NRCS Planning symbols are not available click on "More Symbols" to add the NRCS Planning symbols to your choices.



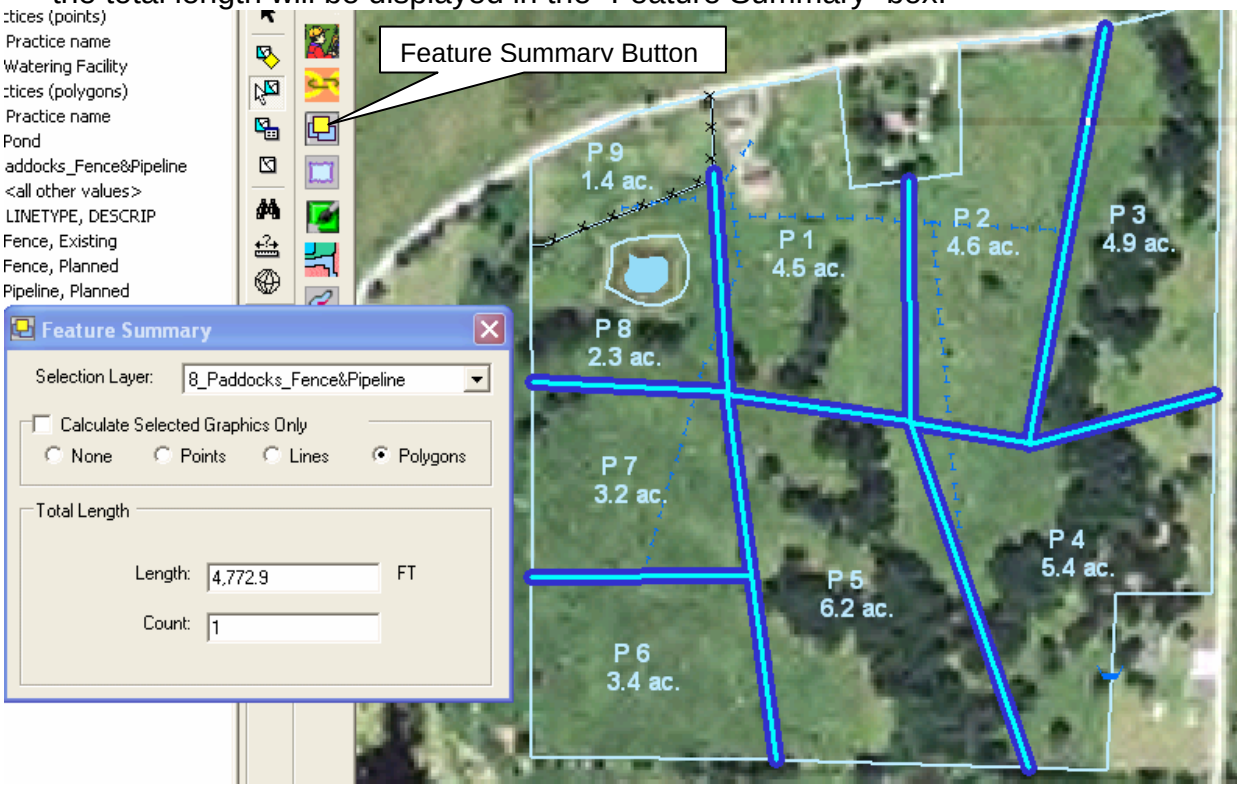
8. Right-click on the layer name and click on “Save Symbology.”




9. You should now have all the proposed practices, fences for example, represented by a single multi-part line. Existing practices should be a separate line with different attributes; the display should distinguish between proposed and existing practices by use of different symbols. It is easy to get a measurement on the length of proposed fence (or pipeline) by clicking on the “Feature Summary” button  . In the “Selection Layer” box click on the dropdown arrow, and select your “Fence&Pipeline” resource layer.



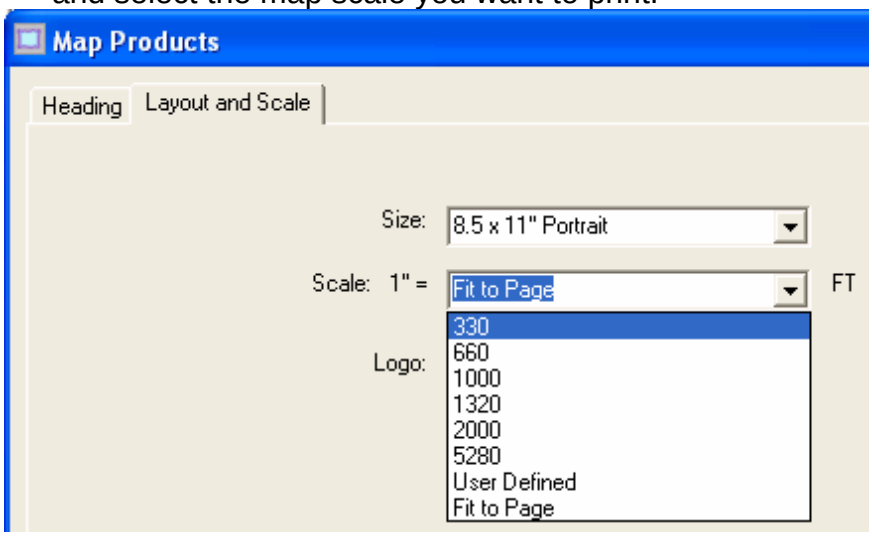
10. Select the feature on the map you want measured (such as the proposed fence); the total length will be displayed in the “Feature Summary” box.



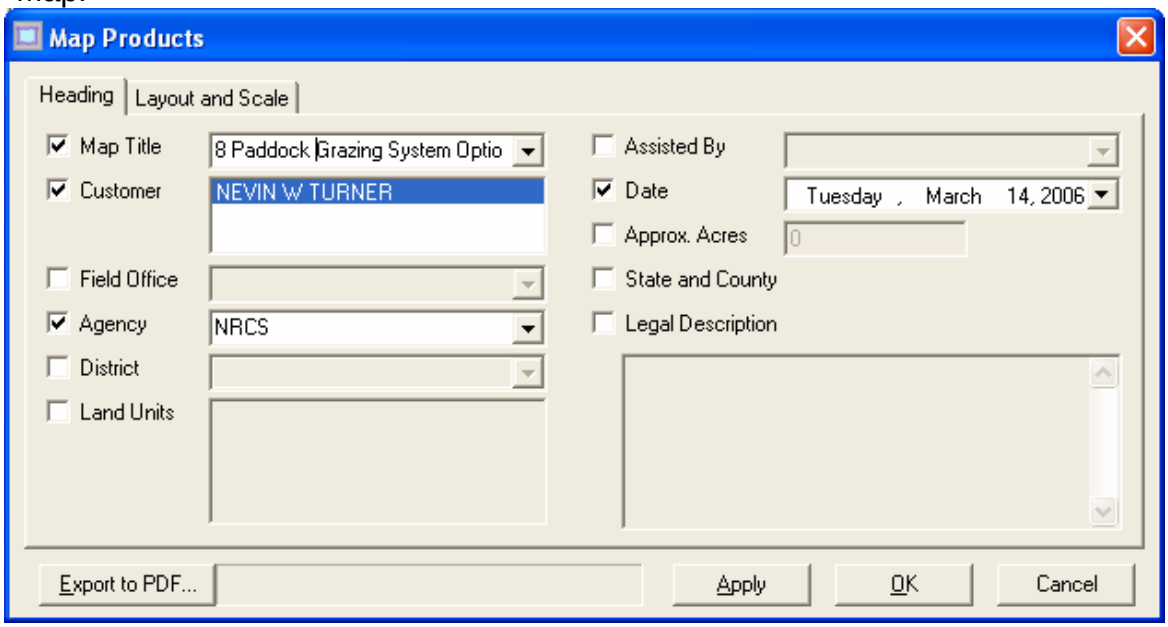

11. Repeat Steps 1 through 10 to develop separate line layers illustrating all the options you want to present to the decision maker. Save the mxd (keeping the same name) after creating and attributing each layer illustrating an option.

## III. Producing a Map Product

1. Click on the “Map Products” button  . Click on the “Layout and Scale” tab, and select the map scale you want to print.

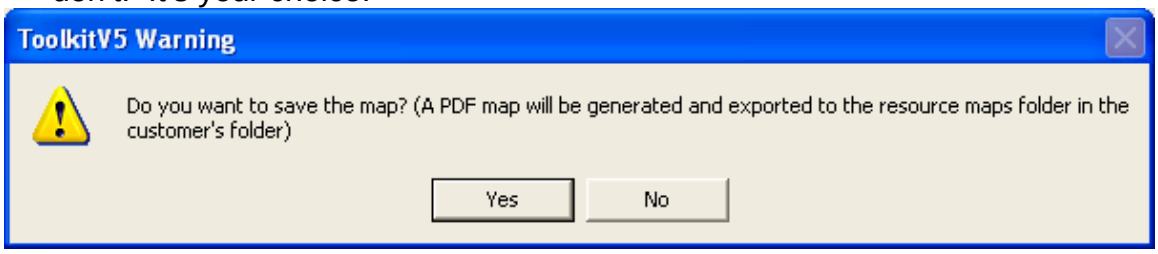



2. Click on the “Heading” tab and complete as much information as you wish to print. Remember, don’t use the word “Plan” in the heading; this is not a Plan Map.




3. Click “OK.”

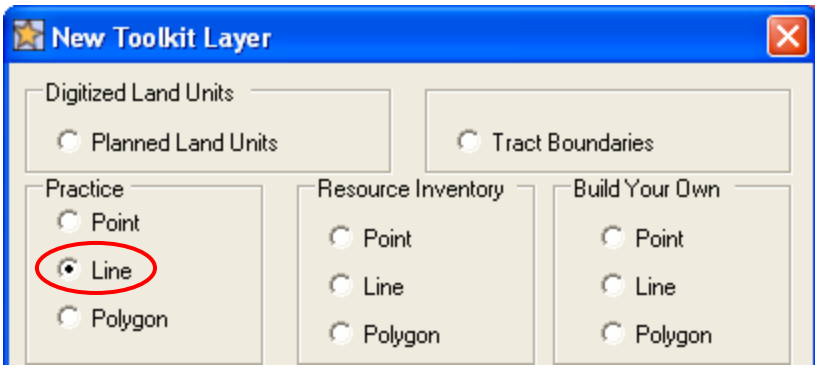
4. Click “Yes” if you wish to save a PDF version of the map; click “No” if you don’t. It’s your choice.



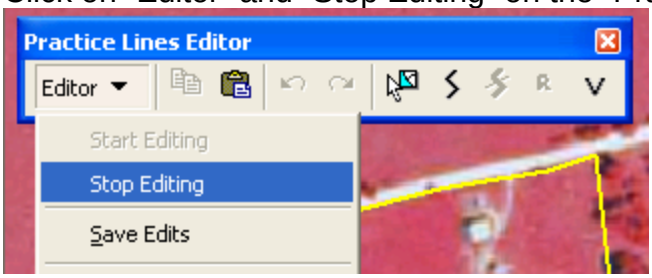

5. The layout, or “Map Product,” will be displayed. Click on the “Print” icon to print a copy.

**IV. Making the Chosen Alternative Part of the Conservation Plan** after the cooperator has made a decision to implement the alternative.

1. Check out the folder in Toolkit.
2. Open the folder.
3. Click on the "Customer File" tab
4. Double-click on the "Consplan.mxd" (or whatever name is used in your office) if one is available. ***If not available*** click on the custom Toolkit template for the county.
5. Click on the "Select a Plan" (cyber-farmer) button  . In the "Select a Plan" dropdown choose the consplan (given various names in different offices). Click "OK." **Note** – if there is no consplan layer you must develop one.
6. If a "Practices (lines)" layer already exists you will copy the fence and pipeline features into this layer. If no "Practices (lines)" layer exists create one by clicking on the "Hardee's Star"  . In the "New Toolkit Layer" box select "Practice" and "Line." Click "OK."



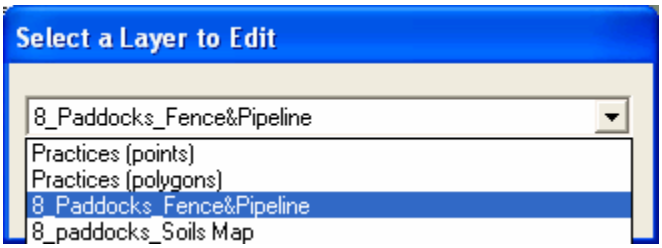

Click on "Editor" and "Stop Editing" on the "Practice Lines Editor" toolbar.



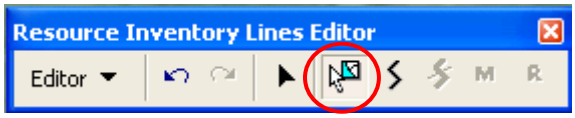

7. Minimize the Cons_Plan.mxd screen, returning to the Customer Service Toolkit screen.
8. Double-click on the Grazing_options.mxd to open it. Visually compare the Cons_Plan field boundaries to the field boundaries of the cooperator's selected grazing option.
9. It may be necessary to revise the field boundaries to conform to the cooperator's new land use decision. If so click on the Cons_plan.mxd tab at the bottom of the screen to bring it into view. Click on the "pencil," and select the consplan layer to edit. Split, merge, or reshape fields in the consplan layer to reflect the new plan. ***Note*** *- although some planners prefer to consider each paddock a separate field, the recommended method is to consider the total area in the rotation sequence*

*as one field; then each paddock is a subdivision of the larger field.* Click on "Editor" and "Save Edits." Click on "Editor" and "Stop Editing."

10. Click on the Grazing_options.mxd tab at the bottom of the screen to bring it into view.
11. Click on the "pencil" and select the "<xx>_paddocks_Fence&Pipeline" layer to edit. Click "OK."

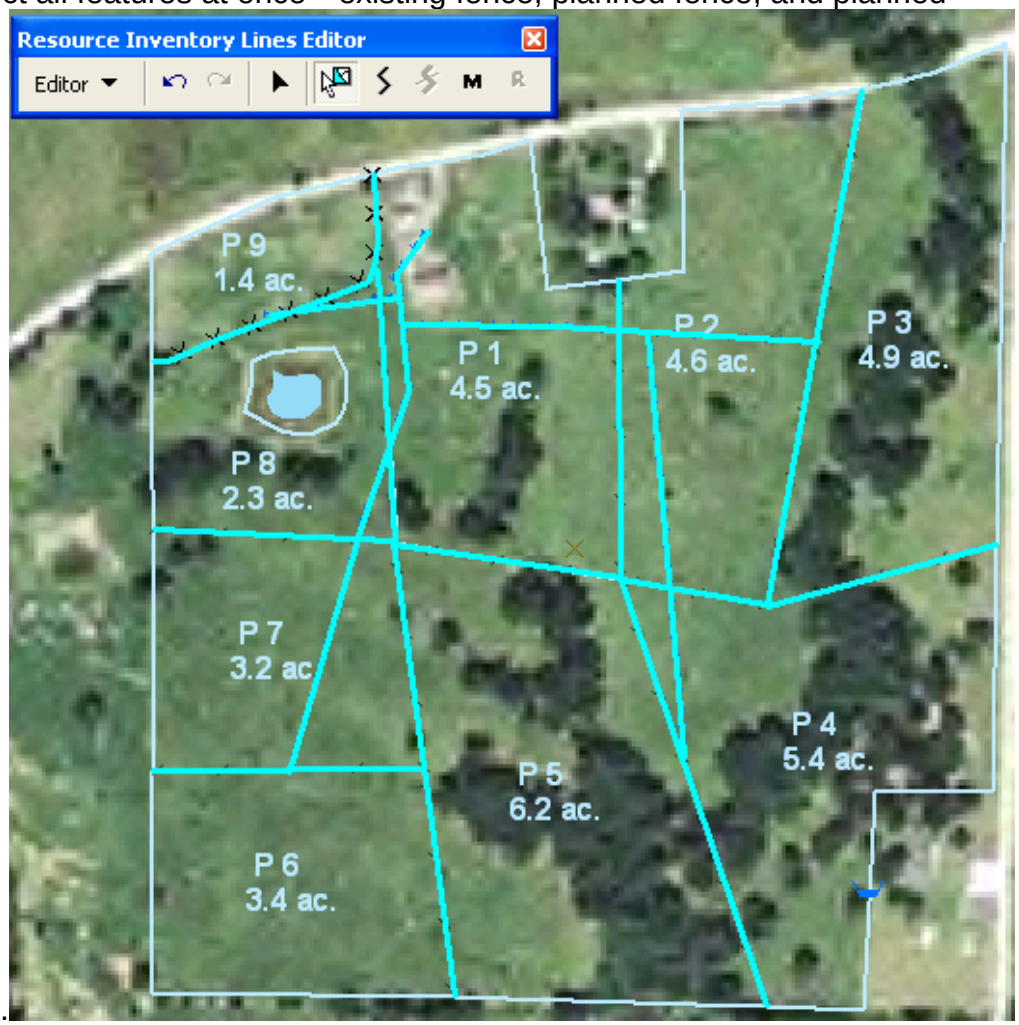



12. Click on the "Select Features" button on the "Resource Inventory Lines Editor" toolbar.

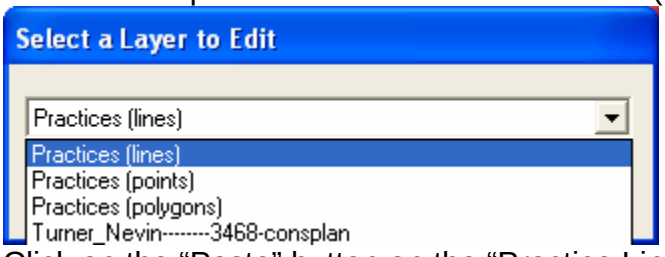



13. Select the features—fences and pipelines—that you want to copy to the conservation plan. You can copy one feature (like proposed fences) at a time, or you can select and copy multiple features in one operation. In this example we

will select all features at once—existing fence, planned fence, and planned pipeline.




14. Click on the “Copy” button on the toolbar near the top of the screen. 
15. Click on “Editor” and “Stop Editing” on the “Resource Inventory Lines Editor” toolbar.
16. Click on the Cons_Plan.mxd tab at the bottom of the screen to bring it into view.
17. Click on the “pencil” and select the “Practices (lines)” layer to edit. Click “OK.”

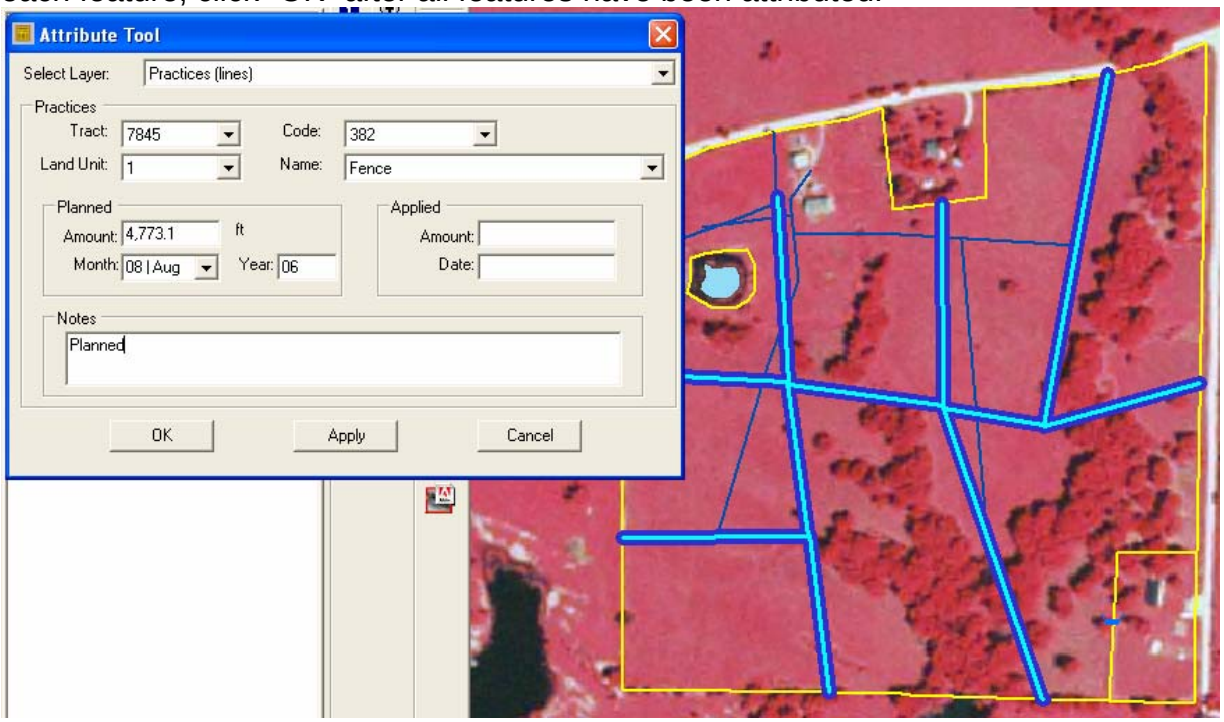



18. Click on the “Paste” button on the “Practice Lines Editor” toolbar.

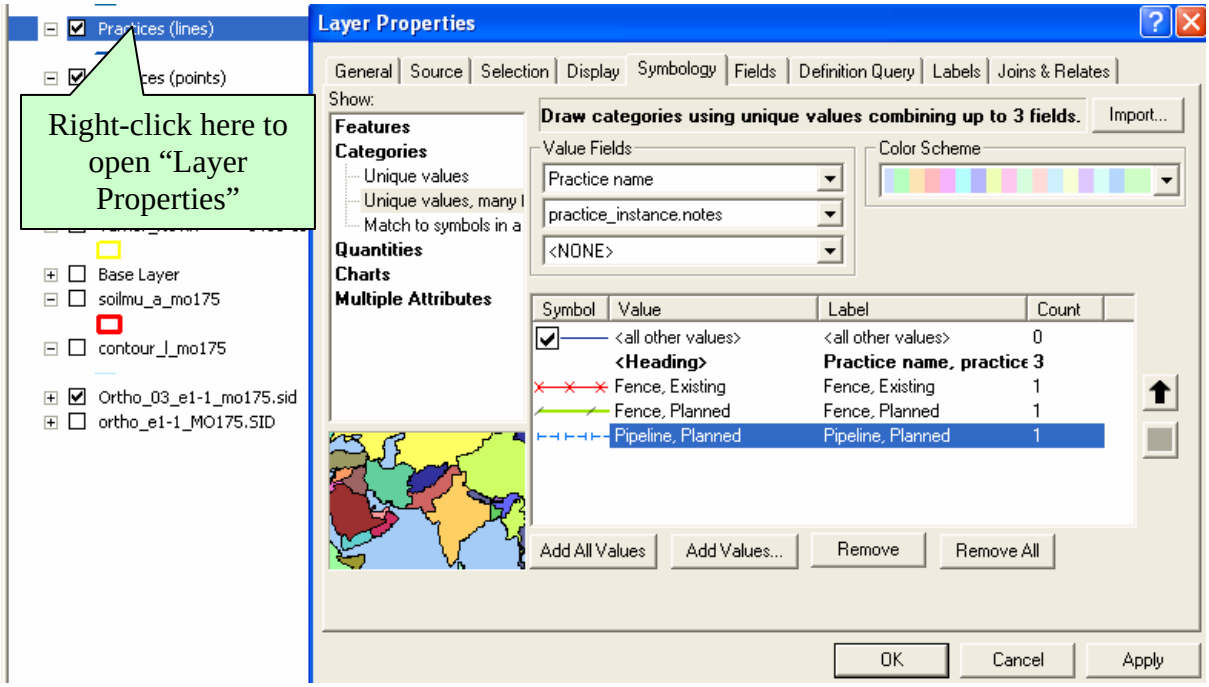

The features representing the fence and pipeline will be pasted into the layer, and will appear on the screen. **Note –**

*occasionally* the copied features will be "lost" off the clipboard. If the lines don't appear on the screen repeat steps 10 through 18.

19. Click on "Editor" and "Stop Editing." Click on "Yes" to save the edits.
20. The newly pasted features must be assigned attributes. Click on the "Attribute Tool" button  . Select the "Practices (lines)" layer to edit. Select each feature (one at a time) and assign appropriate attributes. Click "Apply" after attributing each feature; click "OK" after all features have been attributed.



21. Assign appropriate map symbols to each feature. Right-click on the layer name; click on the “Symbology” tab. In the “Show” pane, under “Categories,” select “Unique values, many fields.” Click on the “Add All Values” button, and then change the symbol for each practice using appropriate NRCS planning symbols. Click “OK.”




22. You may proceed to produce a plan map, if you wish.
23. The “<xx>_Paddocks_Fence&Pipeline” layer representing the option selected by the cooperator has, at this point, served its purpose and may be deleted. If this system option was the only one prepared the Grazing_options.mxd may be deleted from the Toolkit Customer Folder. If an option representing a more sophisticated alternative system was prepared it is recommended that this option not be deleted, as it may be useful in future planning efforts. For example if options representing both an 8-paddock and a 16-paddock system were prepared and the cooperator decided to implement the 8-paddock system, the layer illustrating the 16-pasture system may well be useful in future planning—don’t delete it.